May 1, 1928. 1,668,286

R. L. POWELL

CUTTING MACHINE

Filed July 15, 1927 3 Sheets-Sheet 1

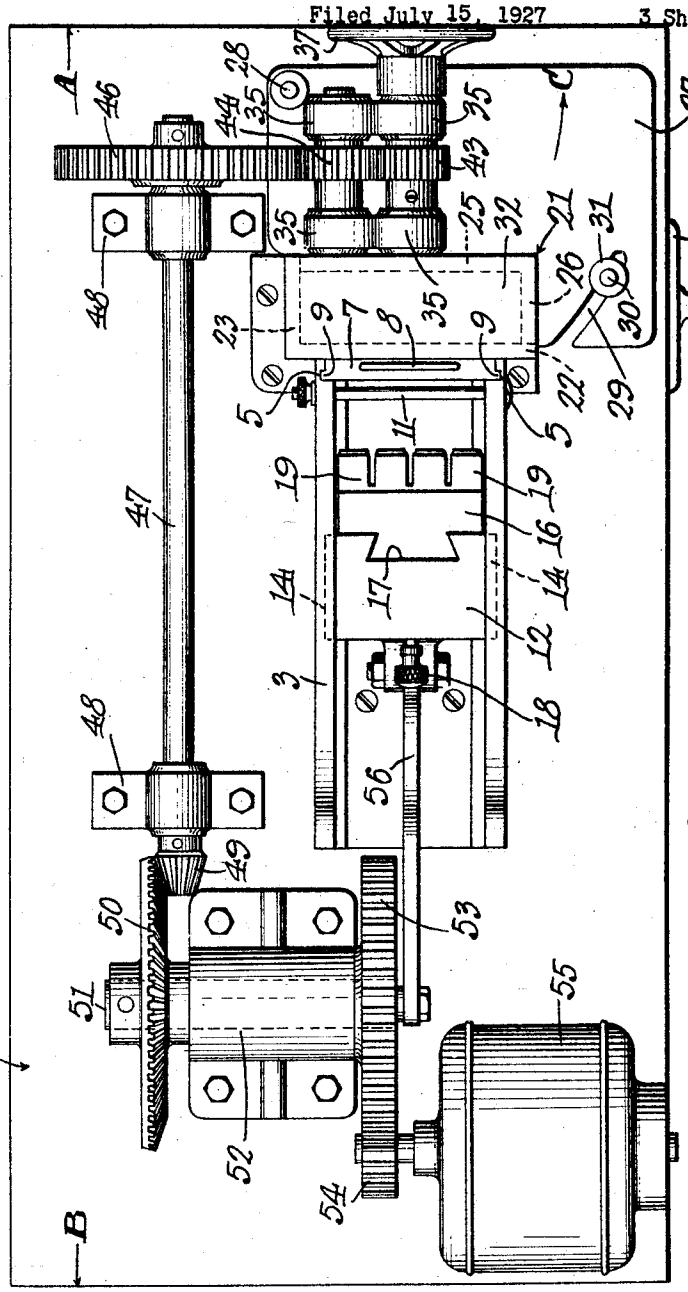


Fig. 1.

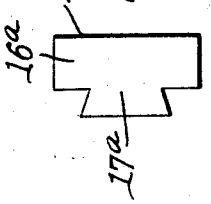


Fig. 10.

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R. L. POWELL

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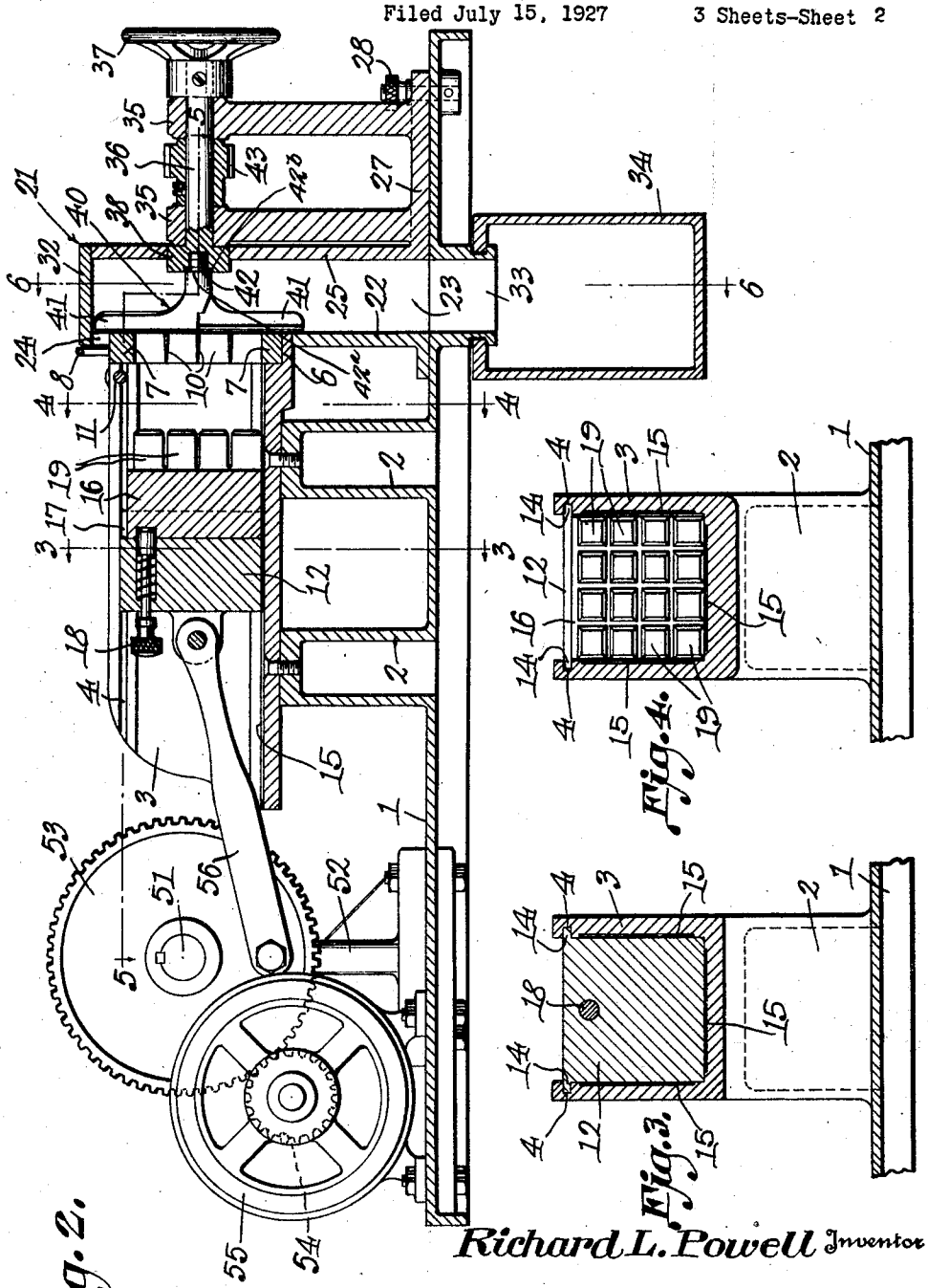


Fig. 2.

Fig. 4.

Fig. 3.

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CUTTING MACHINE

Filed July 15, 1927 3 Sheets-Sheet 3

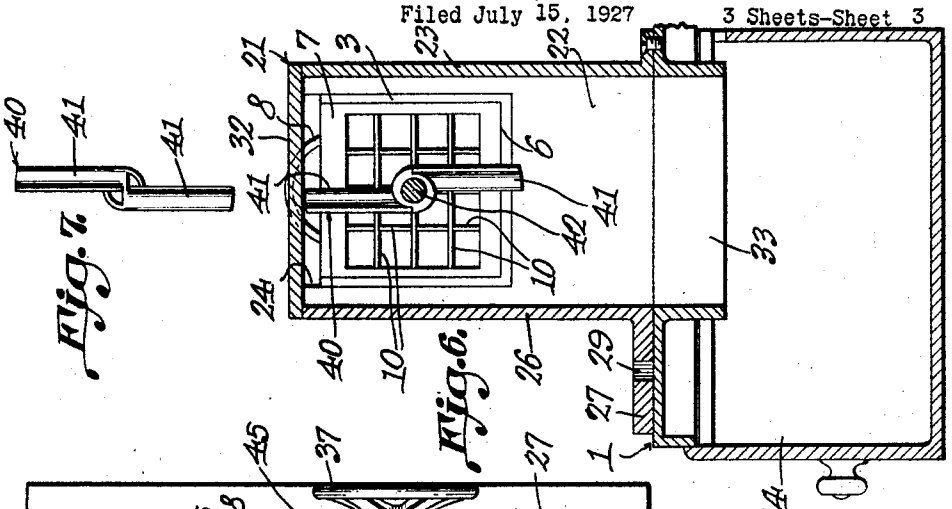


Fig. 7.

Fig. 6.

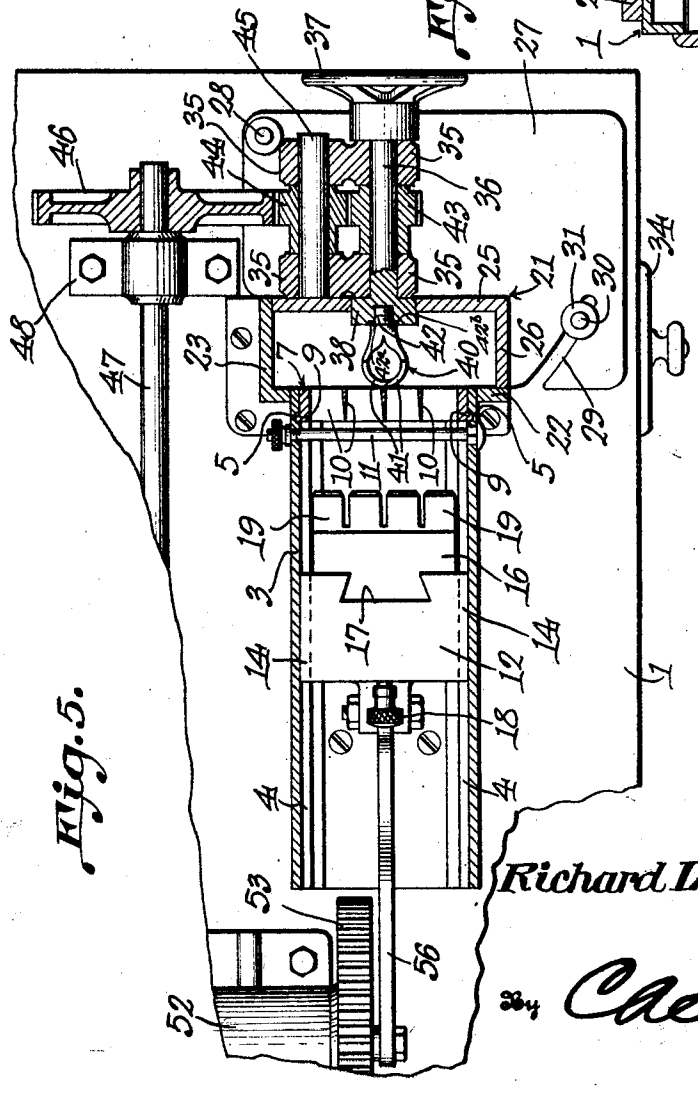


Fig. 5.

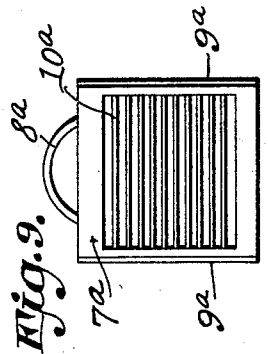


Fig. 9.

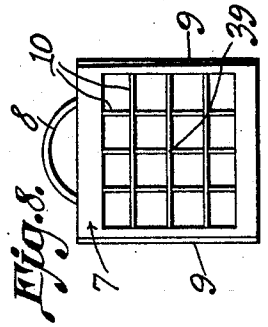


Fig. 8.

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By Cashow & Co.

Attorneys

Patented May 1, 1928. 1,668,286

UNITED STATES PATENT OFFICE.

RICHARD L. POWELL, OF LEWISTOWN, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO WILLIAM W. ESPIGH, OF LEWISTOWN, PENNSYLVANIA.

CUTTING MACHINE.

Application filed July 15, 1927. Serial No. 205,992.

Objects.

By way of explanation it may be stated that when onions are "diced" or cut up into small pieces, in quantities, at hot dog stands, the onions often oxidize and discolor before they are used, the onion then being neither presentable nor palatable. This being understood, the present invention aims to provide a means whereby an onion may be diced so quickly that it will be unnecessary to keep a quantity of cut and deteriorating onions on hand. The invention aims to provide a novel combination of parts embodying a parting frame, a ram for forcing the onions or other material through the parting frame, and a rotary cutter for severing the parted material into pieces of a predetermined length. A further object of the invention is to provide novel means for operating the ram and the rotary cutter in sychronism. Another object of the invention is to provide a machine of the class described which, by substituting one parting frame for another, may be used on vegetables and other substances of different sorts, which it is desirable to cut in different ways. Another object of the invention is to provide novel means whereby the rotary cutter may be moved to inoperative position and thrown out of gear.

It is within the province of the disclosure to improve generally and to enhance the utility of, devices of that sort to which the invention appertains.

Description of figures.

Figure 1 shows in plan, a cutting machine constructed in accordance with the invention; Figure 2 is a longitudinal section; Figures 3, 4, 5, and 6 are sections, taken, respectively, on the lines 3—3, 4—4, 5—5, and 6—6 of Figure 2; Figure 7 is an elevation of the rotary cutter; Figure 8 is an elevation showing the parting frame; Figure 9 is an elevation showing a modified parting frame; Figure 10 is a plan disclosing a modified ram facing.

Detailed description.

The machine includes a support embodying a base plate 1 having pedestals 2 on which a trough-shaped guide 3 is detachably secured, the guide being provided on its sides and near to its upper edges with longitudinal grooves 4. For convenience in referring to the relative positions of parts, that end of the machine to which the reference character A is applied in Figure 1 will be considered the forward end, the rear end being marked by the letter B in Figure 1. The forward end of the guide 3, then, is supplied with vertical transverse grooves 5, and below these grooves, there is a seat 6 in the bottom of the guide 3, as Figure 2 will show.

The numeral 7 marks a parting frame, so called because it parts into strips, the onions or other vegetables that are forced through it. The parting frame 7 has ribs 9 at its sides and is provided at its upper end with a handle 8 whereby the parting frame can be dropped conveniently into the seat 6, the ribs 9 engaging in the grooves 5 of the guide 3. The parting frame 7 has internal blades 10 located at right angles to each other, so as to cut the material up into strips. The parting frame, however, may be made in any desired way. In Figure 9, parts hereinbefore described are referred to by numerals previously used, with the suffix "a". In this form, all of the blades 10^a are parallel, and one figure, such as Figure 9, will instruct a mechanic that he may make the parting frame to fit the work in hand. The side walls of the guide 3 are connected by a tie bolt 11, located a little behind the parting frame 7.

A ram block 12 is mounted for horizontal right-line reciprocation in the guide 3, toward and away from the parting frame 7. The ram block 12 has flanges 14 that slide in the grooves 4. Figures 3 and 4 show that the ram block 12 is cut away at its sides, and at its bottom, as indicated at 15, to give some clearance between the ram block and the guide 3. This construction is desirable when it is recalled that juice and small pieces of severed material may find their way into the guide 3.

A facing 16 is dove-tailed at 17 into the ram block 12, detachably, and is held in place by a spring-pressed latch 18 in the ram block. The facing 16 has projections 19 adapted to be received closely but slidably in the openings formed by the blades

10 in the parting frame 7. Some operators do not care for the projections 19, and such persons may use the facing 16[a] of Figure 10, the facing 16[a] having a smooth surface 20, and being dove-tailed at 17[a] into the ram block, it being possible to substitute one facing for another, as occasion may require.

The machine includes a vertical box-like housing 21 including a rear wall 22 and a side wall 23, these parts being fixedly mounted on the base plate 1, the rear wall 22 having an opening 24 into which the forward end of the guide 3 extends. The housing 21 includes a front wall 25 disposed parallel to the rear wall 22, and a side wall 26 disposed parallel to the side wall 23, the walls 25 and 26 being mounted on a carrier plate 27 which is pivoted at 28 to the base plate 1, to swing horizontally. The carrier plate 27 has a slot 29 which receives a stud 30 on the base plate 1, a nut 31 being threaded on the stud 30 and being adapted to engage the carrier plate 27 to hold it in the working position shown in Figure 1, against swinging movement on the pivot 28. The housing 21 includes a removable lid 32. The housing 21 is located immediately above a depending chute 33 on the base plate 1, a drawer 34 being mounted to slide on chute 33, transversely of the chute.

Bearings 35 are erected on the carrier plate 27, and in them a cutter shaft 36 is mounted to rotate. The cutter shaft 36 has a hand wheel 37 at its forward end. The rear end of the cutter shaft 36 is provided with a head 38 which is journaled in the front wall 25 of the housing 21. The axis of the cutter shaft 36 conincides with the geometrical center 39 (Figure 8) of the parting frame 7. A rotary cutter 40 is provided, and operates in the housing 21, in close relation to the forward surface of the parting frame 7, as Figure 5 will show. The cutter 40 has concaved arms 41 connected to a stem 42 provided with a shoulder 42[a], the stem being threaded, removably, in the head 38 of the cutter shaft 36. By placing a washer 42[b] of desired thickness behind the shoulder 42[a], the cutter 40 may be adjusted so that it will work close to the blades 10 of the parting frame 7. The construction of the cutter 40 is such that it will clear itself readily of material which is shoved through the parting frame 7 by the facing 16 of the ram block 12.

Any suitable means may be provided for rotating the cutter shaft 36, and for reciprocating the ram block 12, in properly timed relation. As shown in the drawings, there is a pinion 43 on the cutter shaft 36, between the bearings 35, the pinion 43 meshing with a reversing pinion 44 located between the bearings 35 and carried by a shaft 45 which is mounted in the bearings. The reversing pinion 44 meshes with a gear wheel 46 on a shaft 47 journaled in bearings 48 on the base plate 1. On the rear end of the shaft 47 there is a beveled pinion 49 which meshes with a beveled gear 50 on a shaft 51 mounted to rotate in a bearing 52 on the base plate 1. The shaft 51 carries a gear wheel 53 meshing with a pinion 54 on the shaft of an electric motor 55, although power of another sort may be employed, if preferred. A pitman 56 is pivoted to the ram block 12, and is pivoted eccentrically on the gear wheel 53.

Operation.

Right line sliding movement is imparted to the ram block 12 by the pitman 56, the gear wheel 53, the pinion 54, and the motor 55. The cutter 40 is caused to rotate through the instrumentality of a train of elements including the shaft 36, the pinion 43, the pinion 44, the gear wheel 46, the shaft 47, the beveled pinion 49, the beveled gear 50, the shaft 51, the gear wheel 53, the pinion 54 and the motor 55.

The onion or other object which is to be cut up is dropped into the guide 3 in front of the parts 19—16 on the ram block 12, and behind the parting frame 7. When reciprocation is imparted to the ram block, the material is forced through the parting frame 7, and the blades 10 thereof cut the material in to strips. The strips are severed into short lengths by the rotating cutter 40, the divided material dropping downwardly through the housing 21 and the chute 33 into the drawer 34, which may be opened when the chopped up material is to be used.

In the event that the operator does not wish to sever the material into pieces by the action of the cutter 40, the nut 31 is backed off, thereby releasing the carrier plate 27, so that the carrier plate can be swung in the direction of the arrow C in Figure 1, the cutter 40 being moved away from the parting frame 7, and the pinion 44 being moved out of mesh with the gear wheel 46, so that there is no driving of the cutter 40, when the cutter is not in working position. When the carrier plate 27 is restored to the position of Figure 1, the pinion 44 may not mesh with the gear wheel 46, but a proper meshing of these parts may be secured manually through the medium of the hand wheel 37, the hand wheel 37 rotating the pinion 43 and the pinion 43 imparting rotation to the pinion 44, until the pinion 44 will mesh with the gear wheel 46. When the carrier plate 27 is swung around in the direction of the arrow C, as aforesaid, the walls 25 and 26 go with the carrier plate, and the housing 21, thus, is opened up, so that it can be cleaned readily. The rotating cutter 40 produces some torque on one side of the parting frame 7, and upon

the opposite side of the parting frame there is a strain produced by the reciprocation of the ram block 12. It is in order to reinforce the structure against these compound strains that the tie bolt 11 is provided.

Remarks.

A preferred form of the invention has been shown, but it will be understood that a mechanic, working within the scope of what is claimed, may make such changes as his skill may suggest, without departing from the spirit of the invention.

I claim:

1. In a device of the class described, a parting frame, a ram mounted to move on one side of the frame, a housing into which the material is forced by the ram, through the parting frame, the housing comprising fixed and movable portions, and a cutter operating upon the opposite side of the parting frame and rotatable in the movable portion of the housing.

2. In a device of the class described, a parting frame, a ram mounted to move on one side of the frame, a housing into which the material is forced by the ram, through the parting frame, the housing comprising fixed and movable portions, a cutter operating upon the opposite side of the parting frame, and a gear train operatively connected to the cutter, a part of the gear train and the cutter being mounted upon the movable portion of the housing, said portion of the housing being movable to space the cutter from the parting frame, to open the housing, and to interrupt the continuity of the gear train.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

RICHARD L. POWELL.